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Acute Acquired Penile Paraphimosis in a Three-Month-Old German Shepherd Puppy

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ABSTRACT

Paraphimosis is a urological emergency characterized by the inability to retract the extruded penis into the preputial cavity. This case report describes acute acquired paraphimosis in a 7kg, 3-month-old intact male German Shepherd puppy presented to the Veterinary Teaching Hospital (VTH), University of Ibadan, Nigeria. The puppy had been transported over a distance of approximately 135km following a dog-training session, and penile protrusion was noted by the owner approximately 12 hours after its return. Clinical examination revealed a hyperaemic, oedematous, non-retractable penis measuring 8cm in length, with multiple haemorrhagic ecchymoses. Rectal temperature was 39.5°C. Haematological evaluation revealed mild non-regenerative normocytic normochromic anaemia with normal erythrocyte indices and mild hypoproteinaemia. The condition was successfully resolved using the conservative protocol of gently cleaning the exposed penis, application of hypertonic sugar solution to induce osmotic oedema reduction, cold compression with ice packs to promote vasoconstriction, topical gentamicin ointment for lubrication and prophylaxis, followed by manual penile replacement in the prepuce. Parenteral amoxicillin (20 mg/kg) was administered for 7 consecutive days with full recovery achieved without surgical intervention. This report documents one of the youngest known cases of acquired paraphimosis in dogs and highlights the importance of prompt veterinary intervention to achieve favourable outcomes regardless of the patient's age. Paraphimosis should therefore be regarded as an emergency in all male dogs, including prepubertal puppies.

Keywords: conservative management, hypertonic sugar solution, penile oedema

INTRODUCTION

Paraphimosis is defined as the persistent, non-retractable protrusion of the penis beyond the preputial orifice. It is commonly observed in intact young male dogs (Zamirbekova *et al.*, 2024). When prolonged penile exposure occurs, the skin at the preputial rim becomes progressively inverted, forming a constrictive band that compromises venous and lymphatic drainage and can lead to penile oedema, mucosal desiccation, ischaemic necrosis and permanent penile damage (Thavani, 2021). The condition has been documented across a wide range of ages and breeds (Kumaresan *et al.*, 2014; Dash *et al.*, 2023; Zamirbekova *et al.*, 2024). Paraphimosis has numerous aetiological factors, which include post-coital or post-semen-collection events, preputial hair constriction, penile haematoma or fracture, neurological deficits affecting the retractor penis muscle, balanoposthitis, foreign bodies, neoplasia, and congenital anomalies of the preputial orifice (Kamalakar

et al., 2024). Though cases of acquired paraphimosis have been reported, this is one of the youngest cases in prepubertal dogs.

CASE PRESENTATION

Case History

A 7 kg 3-month-old intact male German Shepherd puppy was presented to the VTH, University of Ibadan, with a complaint of persistent penile protrusion (Figure 1). The owner noticed the condition about 12 hours after the puppy was transported approximately 135 km by a commercial driver after a dog-training session in another city.

Clinical Examination

On general physical examination, rectal temperature was 39.5°C. Pulse and heart rates were within normal reference ranges. Careful urogenital examination

Management

Conservative protocol of treatment was initiated immediately upon diagnosis given the early presentation and absence of penile necrosis. The exposed penis was cleansed of contaminants with water before hypertonic sugar solution and ice packs for cold compression were applied for about an hour at five-minute intervals to promote vasoconstriction and reduce oedema (Figure 3). Topical antibiotic ointment (Gentamicin) was applied to the exposed penis to lubricate and prevent infection. Reduction was achieved and the penis was manually replaced to its normal position within the preputial cavity. Parenteral amoxicillin (20 mg/kg body weight) was prophylactically administered intramuscularly for seven consecutive days. The puppy recovered without complication and at follow-up, complete resolution with full retraction of the penis was observed (Figure 4).

revealed an oedematous, hyperaemic, and non-retractable penis about 8cm in length. Multiple ecchymotic haemorrhages were visible near the base of the penile mucosa (Figure 2).



Figure 1: Persistent penile protrusion beyond the preputial orifice at initial presentation

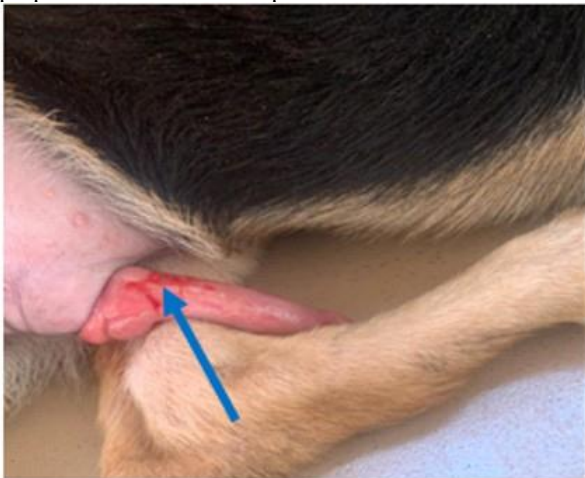


Figure 2: Oedematous, non-retractable penis with ecchymotic haemorrhage near the base

Palpation of the penis elicited a pain response, though no preputial hair ring or foreign body was identified. The preputial orifice was patent but inverted, creating the constrictive band characteristic of paraphimosis. Based on history, signalment, and physical findings, a diagnosis of acute acquired paraphimosis was established.

Laboratory Investigations

Blood was collected from the cephalic vein for haematological and serum biochemistry analyses. The results are presented in Tables 1 and 2. Haematological analysis identified mild non-regenerative normocytic normochromic anaemia with normal erythrocyte indices, while serum biochemistry revealed a mildly reduced total protein level.



Figure 3: Application of ice pack compression to the oedematous penis to promote vasoconstriction and reduce penile size



Figure 4: Complete retraction of the penis into the preputial cavity following successful conservative management and full clinical recovery

Table 1: Haematological parameters of the 3-month-old German Shepherd puppy with acute acquired paraphimosis

Haematological parameter	Value	Reference interval	Remark
Haemoglobin (g/dl)	9.8	11.9-18.9	Low
PCV (%)	30	35-57	Low
RBC ($\times 10^6/\mu\text{l}$)	4.24	4.95-7.87	Low
MCV (fl)	70	66-77	Normal
MCHC (g/dl)	33	32.0-36.3	Normal
Platelets ($\times 10^3/\mu\text{l}$)	137	211-621	Low
Total wbc ($\times 10^3/\mu\text{l}$)	8	5.0-14.1	Normal
Segmented neutrophils ($\times 10^3/\mu\text{l}$) (%)	5.8 (72)	2.9-12 (58-85)	Normal
Band neutrophils ($\times 10^3/\mu\text{l}$) (%)	0.2 (2)	0-0.5 (0-3)	Normal
Lymphocytes ($\times 10^3/\mu\text{l}$) (%)	1.4 (17)	0.4-2.9 (8-21)	Normal
Monocytes ($\times 10^3/\mu\text{l}$) (%)	0.3 (4)	0.1-1.4 (2-10)	Normal
Eosinophils ($\times 10^3/\mu\text{l}$) (%)	0.4 (5)	0-1.3 (0-9)	Normal
Basophils ($\times 10^3/\mu\text{l}$) (%)	0 (0)	0 (0-1)	Normal
Total protein (g/dl)	5.5	6.0-7.5	Physiologic for age
Fibrinogen (mg/dl)	100	150-300	Low

Reference intervals adapted from Merck Veterinary Manual (2024)

Table 2: Serum chemistry parameters of the 3-month-old German Shepherd puppy with acute acquired paraphimosis

Serum chemistry parameter	Value	Reference interval	Remark
Total protein (g/dl)	5.2	5.4-7.5	Physiologic for age
Albumin (g/dl)	2.5	2.3-3.1	Normal
Globulin (g/dl)	2.7	2.7-4.4	Normal
Aspartate aminotransferase (U/L)	9	13-15	Low
Alkaline aminotransferase (U/L)	81	10-109	Normal
Alkaline phosphatase (U/L)	97	1-114	Normal
Blood urea nitrogen (mg/dl)	11	8-28	Normal
Creatinine (mg/dl)	0.7	0.5-1.7	Normal

Reference intervals adapted from Merck Veterinary Manual (2024)

DISCUSSION

Paraphimosis is most commonly observed in young unneutered male dogs primarily as a result of excessive sexual activity (Zamirbekova *et al.*, 2024). The occurrence of paraphimosis in this 3-month-old puppy was not linked to sexual maturity or mating-related events. The probable trigger in this case was the physical and psychological stress associated with long-distance road transport and an unfamiliar social training environment. Thavani (2021) also described paraphimosis in a dog with inciting cause unrelated to sexual intercourse. Sexual arousal or excitement-induced penile erection in prepubertal puppies may also lead to transient penile protrusion but prolonged penile protrusion may lead to progressive oedema and preputial ring constriction. The breed predisposition of the German Shepherd to paraphimosis has been well established (Babalola and Henshaw, 2016; Dash *et al.*, 2023; Zamirbekova *et al.*, 2024).

Canine paraphimosis is managed conservatively or surgically. Our reported case did not require surgical management because of early intervention but several methods of surgical management have been reported for chronic or recurrent cases (Babalola and Henshaw, 2016;

Kamalakar *et al.*, 2024; Zamirbekova *et al.*, 2024; Badham *et al.*, 2026).

The haematological finding of mild non-regenerative normocytic normochromic anaemia with reduced total protein and fibrinogen could have resulted from mild blood loss or haemorrhage (confirmed by the multiple ecchymotic hemorrhages on the penis) or due to age-related physiologic juvenile anaemia. Thrombocytopaenia was mild and unlikely to carry haemostatic significance at this level. The slight variation in values of plasma total protein (measured via refractometer) and serum total protein (measured via chemistry analyzer) was due to different analytical methods.

In conclusion, paraphimosis must be treated as a veterinary emergency regardless of the patient's age or reproductive status because of the limited time for successful conservative management.

Acknowledgments

The clinicians on duty at the Small Animal Clinic of the Veterinary Teaching Hospital, University of Ibadan are acknowledged.

Ethical Statement

Informed consent was received from the pet owner.

Conflict of Interest

The authors have no conflict of interest to declare.

Authors Contribution

MJO was the resident clinician who attended to the case and wrote the manuscript. EAA, LCO and LOO were resident clinicians who also attended to the case and reviewed the manuscript. MOO was the consultant theriogenologist in charge of the case and also reviewed the manuscript.

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